

A review of the genus *Panara* Doubleday, 1847 (Riodinidae) in southeast Brazil, with a description of two new subspecies

Curtis J. Callaghan

Av. Suba 130-25 Casa 6, Bogotá, Colombia

Abstract. The species of the riodinid genus *Panara* Doubleday, 1847 in southern Brazil are reviewed and corrections are made in the nomenclature of the the extra-Amazonian species. Two new subspecies, *Panara soana bacana* and *Panara soana ruschii* are described. The characteristics of the genus *Panara* are reviewed, and two taxa are removed: *Pterographium elegans* (Schaus), new combination; and *Phaenochitonina brevilinea* (Schaus), new combination, new synonymy. Separate keys are presented for adult males and females, as well as comments on the range, adult behavior, and habitats.

Key Words. Neotropical South America, *Panara*

INTRODUCTION

The genus *Panara* consists of five species, four of which are confined to extra-Amazonian Brazil and one distributed throughout the Amazon and Orinoco drainage. All species have black ground color with a diagonal yellow band from the costa to the distal margin, and some of the southern Brazilian phenotypes also have an orange band on the hindwing from the apex to the inner margin, a characteristic which varies within species. This has led to much confusion in the literature (e.g., D'Abrera 1994), such as the mixing of the species and subspecies as well as the inclusion in the genus of unrelated riodinid taxa with orange forewing bands. The lack of a basis for the proper identification of these species has hindered potential research in the biodiversity of southern Brazil.

The purpose of this review is to 1) present biological and morphological information on each species of extra-Amazonian *Panara*, 2) provide a key to both males and females which will help in their rapid determination, 3) correct the nomenclature of the extra-Amazonian species of *Panara*, and 4) review the characteristics of the genus *Panara* with the removal of those taxa which do not belong there.

MATERIALS AND METHODS

During the study I examined numerous museum collections in addition to my own (CJC), which includes material on loan by Dr. Keith Brown: the Museu Nacional, Rio de Janeiro (MN); the Universidade Federal de Paraná (UFP); the Smithsonian Institution, Washington, DC (NMNH), the Museum National d'Histoire Naturelle in Paris (MNHN); the Senckenburg Museum, Frankfurt (SM);

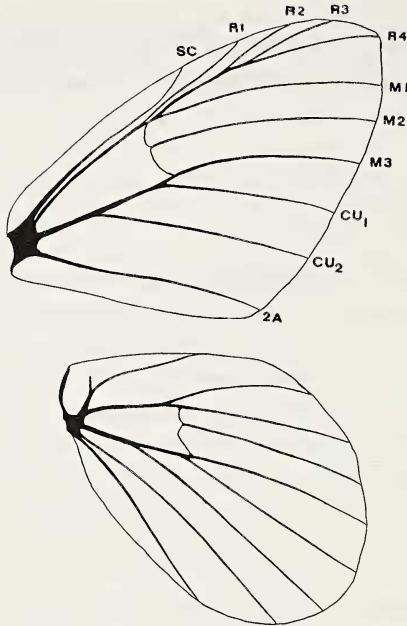


Fig. 1. Venation of *Panara*

the Humboldt Museum, Berlin (MNK); and the Natural History Museum (London) (BMNH). I examined 334 specimens and made 52 genitalia preparations. Measurements were made with an ocular micrometer and calipers. References to wing cells and veins follow the Comstock-Needham system in Miller (1969) and the genitalia terminology follows Klots (1970). In addition, my field trips over a 25-year period provided data on habitats and adult habits of *Panara*.

THE GENUS *PANARA* DOUBLEDAY

Harvey (1987) followed Stichel (1910) in placing *Panara* in the *Ancyluris* section of the tribe Riodinini. This tribe is characterized by a deeply indented notch in the posterior margin of the tegumen of the male genitalia. A true saccus is also absent, the vinculum being ribbon-like ventrally, and not fused to the valvae.

Within the tribe Riodinini, *Panara* is related to *Lyropteryx* Westwood, [1851], *Necryia* Westwood, [1851], *Cyrenia* Westwood, [1851], *Ancyluris* Hubner, [1819], *Nirodia* Westwood, [1851], *Rhetus* Swainson, [1829], *Chorinea* Gray, 1832, *Nahida* Kirby, 1871, and *Ithomeis* Bates, 1862, all of which have 1) a normal strap-like pedicel in the male genitalia, 2) forewing vein R2 originating beyond the end of the cell, stalked with R3 and R4, and 3) the ostium bursa located in the middle of the ventral surface of the abdomen, not displaced to the right as in the Riodina section of the tribe.

Panara may be separated from related genera by 1) the black ground color of the wings and the transverse orange band on the forewing, 2) the male genitalia which are broad and triangular shaped laterally, 3) the wing venation. At the end of the forewing cell, M2–M3 forms a junction with M3 and

CU1, whereas in related genera this junction is considerably more basad of the cell (Fig. 1).

The genitalia of the southern Brazilian *Panara* species show considerable individual variation which makes classification on this basis tenuous. The most constant character in the male genitalia is the height of the valvae relative to the transtilla. However, I found an individual of *Panara iarbas* with the left valva higher and the right valva lower.

Synonyms and New Combinations

The last revisor of the genus *Panara* was Stichel (1930) who defined six species and five subspecies, as follows:

- P. phereclus* (Linné, 1758)
 - a) *barsacus* Westwood, [1851]
 - b) *elegans* Schaus, 1920
 - c) *episatnius* Prittwitz, 1865
 - = *sicora* Hewitson, 1865
 - = *artifascia* Butler, 1874
 - d) *lemniscata* Thieme, 1907
 - = *comes* Stichel, 1909
- P. aureizona* Butler, 1874
 - = *ornata* Stichel, 1909
- P. thisbe* (Fabricius, 1782)
 - = *iarbus* (Drury, 1782)
 - = *perditus* (Fabricius, 1783)
 - = *ovifera* Seitz, 1913
 - a) *eclipsis* Seitz, 1913
 - b) *soana* Hewitson, 1875
- P. brevilinea* Schaus, 1920
- P. thymele* Stichel, 1909
- P. trabalis* Stichel, 1916

As constituted by Stichel, the genus *Panara* is polyphyletic. Three taxa have been included erroneously in the genus: “*Panara*” *elegans* Schaus, 1920, “*Panara*” *brevilinea* Schaus, 1928, and “*Panara*” *sicora* Hewitson, 1875. The removal of *P. brevilinea* was facilitated by its being a junior synonym of an existing taxon. *P. sicora* was removed to the genus *Pterographium* Stichel, 1910 by Hall and Willmott (1996).

Phaenochitonina brevilinea (Schaus, 1920), **new combination, new synonymy**. My examination of the type of *P. brevilinea* at the NMNH suggests that it is a synonym of *Phaenochitonina iasis* Godman, 1903, the type of which is in the BMNH.

Pterographium elegans Schaus, **new combination**. Harvey (1987) discovered that *Panara elegans* has the androconia on the anterior margins of the abdominal sclerites, characteristic of the tribe Symmachiini. However, he did not assign this species to a genus. My examination of *P. elegans* suggests that it is near to *Pterographium* based on the presence of erectile scent hairs in cell CU2–2A of the dorsal hindwing, the principal character for this genus

(Zikan 1949). Therefore, I provisionally place it in *Pterographium* until the limits of the genera of the tribe Symmachiini can be better defined. The remaining group of species is monophyletic, sharing the characteristics described for the genus *Panara* above.

With the changes proposed in this review, the following synonymic list summarizes the classification of *Panara*:

- P. phereclus* (Linné, 1758)
 - ssp. *barsacus* Westwood, [1851]
 - ssp. *lemniscata* Thieme, 1907
 - = *comes* Stichel, 1909
- P. iarbas* (Drury, 1782), **replacement name**
 - = *thisbe* (Fabricius, 1782), preocc. (*thysbe* Linné, 1764)
 - = *perditus* (Fabricius, 1793)
 - ssp. *episatnius* Prittwitz, 1865
 - = *artifascia* Butler, 1874
 - = *eclipsis* Seitz, 1913, **new synonymy**
 - ssp. *thymele* Stichel, 1909, **new status**
- P. aureizona* Butler, 1874
 - = *ornata* Stichel, 1909
- P. soana* Hewitson, 1875, **reinstated status**
 - = *trabalis* Stichel, 1916, **new synonymy**
 - = *dilata* Lathy, 1932, **new combination, new synonymy**
 - ssp. *bacana*, **new subspecies**
 - ssp. *ruschii*, **new subspecies**
- P. ovifera* Seitz, 1913, **new status**

Ecology and Behavior

Habitat. The genus *Panara* is distributed in tropical South America to the east of the Andes. One species, *Panara phereclus* (Linn.) ranges from the Guianas throughout the Amazon and Orinoco drainages to Peru and Bolivia at elevations less than 200 m (Fig. 37), a region characterized by Tropical Moist Forest habitats (Tosi 1983, Holdridge 1947). The other species are concentrated in northeastern (Pernambuco) to southeastern Brazil (Paraná, Santa Catarina), reaching the central Planalto (Goiás). In southern Brazil, the species distributions are correlated with climatic zones. *Panara soana* and its subspecies inhabit the Subtropical Wet Forest and Warm Temperate Moist Forest zones, north through subtropical lower montane moist forest in the Serra da Mantiqueira, and the montane formations of the Subtropical Moist Forest habitat which reach their northern limit at Santa Teresa, Espírito Santo (Tosi 1983). This distribution more or less parallels that of the Paraná pine tree *Araucaria*. *Panara iarbas* and its subspecies inhabit the lower elevations of Subtropical Moist Forest in Rio de Janeiro State north to Pernambuco, then west along gallery forests penetrating the Planalto Central to central Goiás, and south to western Paraná. The two other species have limited distribution: *Panara ovifera* inhabits the cloud forests of the Serra do Mar above 1300 m and *Panara aureizona* the coastal

Subtropical Moist Forest areas of Santa Catarina and Paraná, and occasionally to 900 m.

All species inhabit secondary as well as primary forest habitats. I have never observed them flying outside the forest, except when visiting nectar sources.

Seasonality. Those species inhabiting lowland areas fly all year round, whereas *P. soana* flies from September to May, and *P. ovifera* February and March.

Biology. Early stage biology of the genus is unknown.

Adult Nectar Sources. I have observed *Panara* feeding during the morning on flowers, especially *Eupatorium*, and on one occasion on bird droppings in the forest.

Wing Pattern and Predation. All *Panara* species are black with a yellow-orange band on the forewing, a pattern shared by many other riordinids (*Melanis*, *Pterographium*, *Stichelia*, *Riodina*) and day flying moths (Pericopinae). It is not known whether *Panara* is distasteful, however males rest on the dorsal surfaces of leaves with wings spread advertising of their color pattern. I have never observed attacks by birds, nor have I captured specimens with beak marks, which suggests that vertebrate predation is minimal.

Mating Behavior. All *Panara* use perching as mate locating behavior. Localities for perching are small clearings in the forest, such as along roads and trails. Forested hilltops are frequented, but so are clearings in the same area which suggests that the forest opening is more important than the physical summit. From 1100–1500 h males rest on the edge of the dorsal surface of sunlit leaves with wings outspread and antennae apart (Fig. 4) awaiting females. When disturbed, they fly with a rapid, gliding flight, returning shortly to their original perching site. When not perching, they rest on the ventral leaf surfaces with a wingtip protruding beyond the edge. Females are rarer, but are encountered at nectar sources or in the forest.

Key to the Males of *Panara* in Southeast Brazil

- 1a. Ventral surface of both wings with dull dark purple scaling at apex of forewing and base of hindwing 2
- 1b. Ventral surface with strong, iridescent light blue scaling at apex of forewing and base of hindwing 4
- 2a. Male hindwing band present *P. iarbas*
- 2b. Male hindwing band absent *P. aureizona*
- 3a. Male forewing band reduced to an elongated, oval spot; hindwing band wide and rounded towards costa, tapering to inner margin *P. ovifera*
- 3b. Male forewing and hindwing bands narrow (1.5 mm) elongated; hindwing band straight *P. soana*

Key to the Females of *Panara* in Southeast Brazil

- 1a. Veins on both wings outlined with lighter scaling. *P. soana*
- 1b. Veins not outlined with lighter scaling 2
- 2a. Band on forewing reaches distal margin 3

- 2b. Band on forewing does not reach distal margin *P. ovifera*
 3a. Forewing band wide (>3 mm) *P. aureizona*
 3b. Forewing band narrow (<3 mm) *P. iarbas*

SPECIES ACCOUNTS

Panara iarbas (Drury, 1782) (*Papilio*), **replacement name**
 =*Papilio thisbe* (Fabricius, 1782), preocc. (*Papilio thisbe* Linné, 1764)
 = *Hesperia perditus* Fabricius, 1793

Nomenclature. *Panara iarbus* (Drury 1782): *Papilio thisbe* was described by Fabricius as having yellow bands on both fore- and hindwings, and as coming from "Brazil." However, Fabricius' name is a primary homonym of *Papilio thisbe* Linné, which refers to a South African lycaenid butterfly currently in the genus *Poecilmitis* Butler, 1899. Drury (1782) essentially repeated Fabricius' description in describing *Papilio iarbas*, which becomes the next available replacement name for *P. thisbe*. No type of either taxa has been located; however, as no strong ventral surface blue reflections are mentioned in either description, the name probably refers to the coastal populations of *P. iarbus* from central-southeast Brazil, the males of which consistently have yellow bands on both the fore- and hindwings.

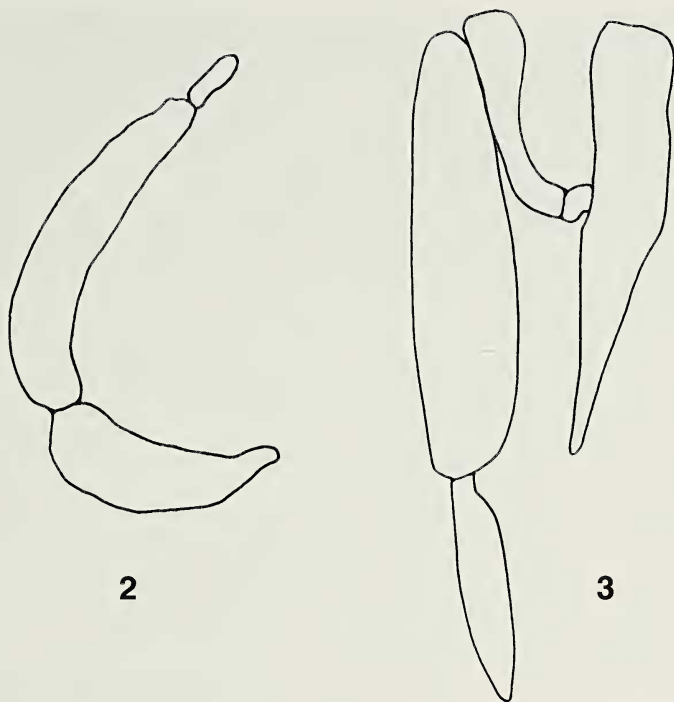
Hesperia perditus Fabricius, 1793: This taxon, described from "French Guiana" is identical to *P. iarbas*. However, information supplied by C. Brevignon, a resident collector (pers. comm.), suggests that this taxon is not found there. Scudder (1875) designated *P. iarbus* as the type species of the genus *Panara* Doubleday, 1847.

In view of the inadequacy of the original descriptions, the species is re-described as follows:

Male. Medium sized (forewing length average 20 mm), robust rioidinid butterfly with black appendages and a yellow lateral line on the abdomen. Palpae (Fig. 2) and male foreleg (Fig. 3) as illustrated. Vein R1 on the forewing rises before the discal cell with R2 following it (Fig. 1). Wings black with an orange-yellow 2–3 mm wide transverse band on the forewing between the costa to less than 1 mm from the distal margin, and with a second transverse band of variable width (0.3–3 mm) on hindwing between 0.5 mm from the apex and the inner margin. Ventral wing surface with same transverse bands as on dorsal surface, ground color black with a faint purple reflection, stronger at the forewing apex. Fringe black.

Female. Fore- and hindwing more rounded than male; forewing transverse band width variable (1–3 mm), reaching from costa to distal margin, curving to anal angle; hindwing band dorsal surface when present extends from costa to inner margin, convex to base and is duplicated on the ventral surface; when absent dorsally, is reflected by a band of lighter scaling on the ventral surface.

Genitalia. Male genitalia (Fig. 29) with pedicel a strap-like band connecting aedeagus to base of valvae; tergum deeply indented caudad; vinculum ribbon-like ventrally, not fused to valvae; valvae sickle-shaped, serrated



2

3

Fig. 2. *Panara* male palpusFig. 3. *Panara* male foreleg

caudad; tips of valvae reaching to transtilla; transtilla with two small projections caudad; saccus reduced.

Female genitalia (Fig. 33) with blade-like papillae anales fused dorsad; ostium bursae squared, sclerotized; corpus bursae without signa.

Geographical Distribution. *Panara iarbas* ranges from Rio de Janeiro State north to Pernambuco, then west across the Planalto to Goiás, from sea level to 1000 m, then south through western São Paulo State to western Paraná.

Geographical Variation. I recognize three distinct populations, represented by the nominate subspecies, *P. iarbas episcatnius*, and *P. iarbus thymele*.

Panara iarbas iarbas (Drury, 1782) (*Papilio*), **replacement name**

Identification. The nominate subspecies has wide hindwing bands on both sexes. The male can be separated easily from *Panara soana* by the lack of strong blue reflections on the ventral surface at the apex and base of the wings.

Geographic Distribution. The distribution of *P. iarbas iarbas* is disjunct, from the Serra da Carioca and Serra do Mar in western Rio de Janeiro State to southeastern Minas Gerais, and again in the Zona da Mata from northern coastal Espírito Santo State north to Pernambuco.

Brazil. Rio de Janeiro: Rio de Janeiro, 0-600 m, 25♂, 2♀, MN; 5♂, 1♀, NMNH; 4♂, 6♀, UFP; Novo Friburgo, 2♂, 1♀, NHML; Jacarepaguá, 3♂,



Fig. 4. *P. iarbus* perching, Barra de São João, R.J. Brazil

UFP; Angra dos Reis, 8♂, 1♀, MN; Paineiras, R.J., 3♂, 1♀, MN. Minas Gerais: Passa Quatro, MG, 1♀, NHML. Bahia: "Bahia," 1♀, SM; Itamaraju, 1♂, MN; Ilheus, 2♂, MN; Pernambuco: 10 km E. João Pessoa, 7♂, 2♀; São Lourenço, 1♂, NMNH; Tiuna, PE, 1♀, CJC.

Ecology and Behavior. In coastal Brazil, *P. iarbas iarbas* inhabits primary and disturbed humid subtropical forest. Males perch in the late morning to early afternoon in light gaps and other small clearings and on hilltops, resting on dorsal leaf surfaces with their wings outspread and head and body raised at a 30° angle from the leaf surface (Fig. 4). Females are encountered less frequently, flying near the ground in the forests. It is local and uncommon.

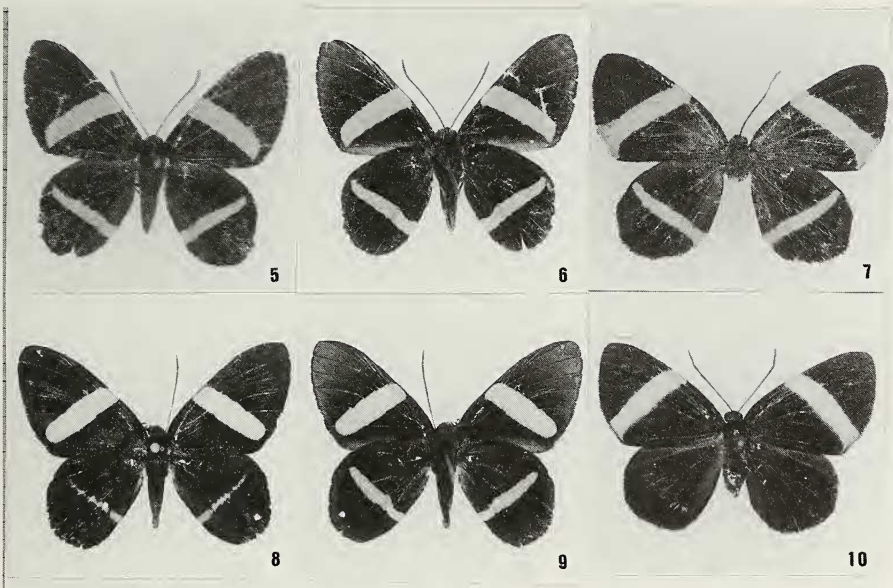
P. iarbas epistatnius Prittwitz, 1865, **new combination** (Figs. 8–10)

= *P. artifascia* Butler, 1874

= *P. eclipsis* Seitz, 1913, **new synonymy**

Nomenclature. *Panara epistatnius* Prittwitz, 1865: Prittwitz described *Panara epistatnius* from a female from Rio de Janeiro, currently in the Natural History Museum, London. Stichel (1930) subsequently designated *P. epistatnius* a subspecies of *phereclus* based on the absence of the hindwing band. This was in error, as *P. phereclus* is limited to the Amazonian drainage.

Panara artifascia Butler, 1874: Butler described this taxon from a female



- Fig. 5. *P. iarbasa iarbasa*, male dorsal surface
 Fig. 6. *P. iarbasa iarbasa*, male ventral surface
 Fig. 7. *P. iarbasa iarbasa*, female dorsal surface
 Fig. 8. *P. iarbasa episcatnius*, male dorsal surface
 Fig. 9. *P. iarbasa episcatnius*, male ventral surface
 Fig. 10. *P. iarbasa episcatnius*, female dorsal surface

from Espirito Santo presently in the Natural History Museum, London, which is identical to *P. episcatnius*. The two were synonymized by Stichel (1930).

Panara eclipsis Seitz, 1913: Seitz based his description of *Panara eclipsis* on a male from Espirito Santo, designating it as a form of *Panara thisbe*, which was subsequently raised to a subspecies by Stichel (1926). *P. eclipsis* is in fact the male of *P. episcatnius*, thus becoming a junior synonym of that taxon. The locality of the type of *P. eclipsis* is unknown; however the butterfly is distinct enough as to make the designation of a neotype unnecessary.

Identification. The males *P. i. episcatnius* differ from the nominate subspecies in the reduced width of the band on the dorsal hindwing to 0.5 mm and ventrally to 1 mm. Females differ in the absence of the hindwing band. *P. i. episcatnius* intergrades to the east of Rio de Janeiro State with *P. i. iarbasa*, some individuals showing characteristics of both phenotypes. The male genitalia of material from central Espirito Santo have long points on the valvae, whereas those from eastern Rio de Janeiro State are identical to nominate *P. i. iarbasa*.

Geographic Distribution. *P. i. episcatnius* is found throughout Espirito Santo and adjoining eastern Minas Gerais State below 800 m. This suggests that

P. i. epistatnius is an isolated population of *P. i. iarbás* which has recently come into secondary contact.

Brazil. Minas Gerais: Parque Estadual de Rio Doce, 2♂, 2♀, CJC; Espirito Santo: Linhares, 1♂, CJC; B. Guapemirim, 1♂, MN; Boitacazes, 1♂, MN; "Espirito Santo," 3♂, MN; Colatina, 6♀, MN; Conceição da Barra, 1♂, 1♀, UFP; Linhares, 1♀, UFP; Baixu Guandu, ES, 2♂, UFP.

Intergrades to *P. iarbás iarbás*: Rio de Janeiro: km 27, Rio-Teresopolis, 1♂, CJC; Barra de São João, 2♂, CJC; Fazenda União, 4♂, CJC.

Ecology and Behavior. These are the same as the nominate subspecies.

P. iarbás thymele Stichel, 1909, **new status** (Figs. 11–13)

Nomenclature. *Panara thymele* was described from a male from Casa Blanca, São Paulo, currently in the Museum für Naturkunde, Humboldt Universität, Berlin. *P. i. iarbás* intergrades in central Bahia with *P. i. thymele*, suggesting that they are conspecific.

Identification. The male can be distinguished by the slight S-shaped forewing band and both males and females by the hindwing band concave to the margin. Specimens from Bahia have thinner bands than those from Goiás.

Geographic Distribution. *P. i. thymele* is found from western Bahia south to western Paraná, then across the Planalto Central to Goiás State.

Brazil. Federal District: Sobradinho, 3♂, CJC; Parque da Gama, DF, 2♂, 1♀, UFP; Agua Limpa, DP, 3♂, UFP. Goiás: Goiás Velho, 2♂, 1♀, CJC; 1♀, UFP Bahia: km 997, Rio-Bahia, 1♀, CJC; "Bahia," 9♂, 1♀, BMNH; Campo Formosa, Juazeiro, 1♂, UFP. Paraná: Guarapuava, 1000 m, 1♂, UFP.

Ecology and Behavior. On the Planalto, the subspecies inhabits the gallery forests along streams and cabeceira (headwater) woods where it flies during the early afternoon hours, frequenting the edges of clearings where the males perch on the dorsal leaf surfaces with wings open.

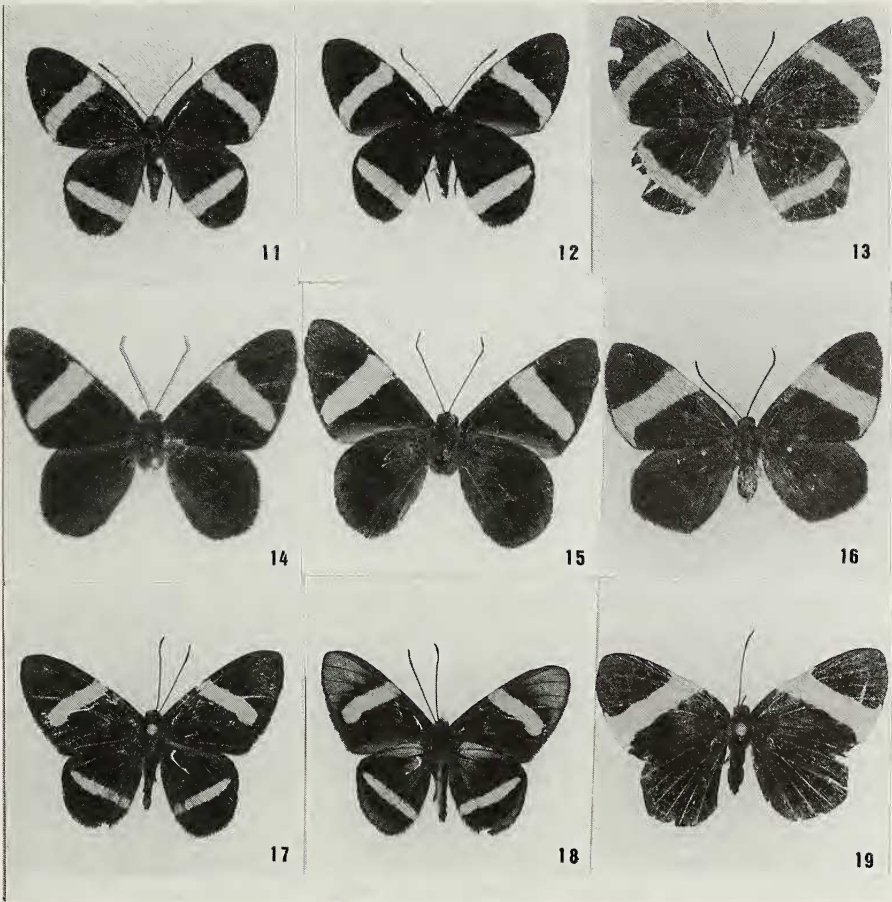
Panara aureizona Butler, 1874 (Figs. 14–16)

=*P. aureizona f. ornata* Stichel, 1909

Nomenclature. Butler described *P. aureizona* from a female from "Minas Gerais," currently in the Natural History Museum (London). It is sympatric at Joinville, Santa Catarina with *P. soana* and allopatric with *P. i. thymele* to the west. The genitalia are intermediate between *P. iarbás* and *P. soana*.

Geographical Variation. *P. aureizona* is very rare in collections, so its distribution and variation are not well known. An occasional male has a spot of orange where the band should be on the hindwing.

Identification. Males may be separated by the 3.5 mm wide band from the costa to the outer margin, and the females by the 4 mm wide forewing band which extends basad and distad along the costa, and is curved towards the anal angle on the distal margin. Both sexes lack the hindwing band, but on the VHW is a faint transverse line of lighter scaling in the normal position of orange band. In the male genitalia (Fig. 30), the valvae do not reach the transtilla; the ostium bursae in the female genitalia (Fig. 34) has V-shaped sides.



- Fig. 11. *P. iarbas thymele*, male dorsal surface
 Fig. 12. *P. iarbas thymele*, male ventral surface
 Fig. 13. *P. iarbas thymele*, female dorsal surface
 Fig. 14. *P. aureizona*, male dorsal surface
 Fig. 15. *P. aureizona*, male ventral surface
 Fig. 16. *P. aureizona*, female dorsal surface
 Fig. 17. *P. soana soana*, male dorsal surface
 Fig. 18. *P. soana soana*, male ventral surface
 Fig. 19. *P. soana soana*, female dorsal surface

Geographic Distribution. *P. aureizona* ranges from coastal Santa Catarina and Paraná north and west to eastern Minas Gerais(?). As no other records have been found between Paraná and Minas Gerais, the locality of Butler's type is suspect.

Brazil. Santa Catarina: Itaiópolis, 900 m, 1♂, SM; Garcia, 60 m, 3♂, SM; Blumenau, 50 m, 3♂, SM; Macaranduba, 130 m, 1♂, SM; Joinville, 3♂, UFP; 10♂, 10♀, NM; 1♂, 1♀, CJC; Jaragua, 200 m, 1♂, UFP. Paraná: Marumbi, 500 m, 1♂, UFP; 5♂, 4♀, no locality, BMNH.

Ecology and Behavior. *P. aureizona* inhabits disturbed tropical forest from sea level to about 900 m. The males are found hilltopping at Joinville, Santa Catarina (H.W. Miers, pers. comm.). The females are encountered more often beside roads and in the forest.

***Panara soana* Hewitson, 1875**

Identification. *Panara soana* males may be separated from other *Panara* by the blue sheen at the apex of the forewing, at the base and along the margin of the hindwing combined with a straight, narrow, band on the fore- and hindwings; and the females by a dusting of lighter scaling along the veins.

Geographical Variation. I recognize three distinct geographical populations of *P. soana*, two of which are new. All three are allopatric with no known intergrades, which future investigations may show to be separate species.

***Panara soana soana* Hewitson, 1875, reinstated status (Figs. 17–19)**

= *P. trabalis* Stichel, 1916, new synonymy

= *P. dilata* Lathy, 1932, new combination, new synonymy

Nomenclature. *Panara soana* Hewitson, 1875: *P. soana* was described by Hewitson from a male labeled “Brazil.” Comparison of the type with material from Santa Catarina, Paraná, and São Paulo suggests that the specimen originated from this region. Stichel (1909) designated *P. soana* as a subspecies of *P. thisbe* (*iarbas*). Examination of these two taxa suggests that this was in error, as they maintain consistent morphological differences, even when sympatric (Santa Teresa, ES; Novo Friburgo, Rio de Janeiro). The type of *P. soana soana* is in the Natural History Museum (London).

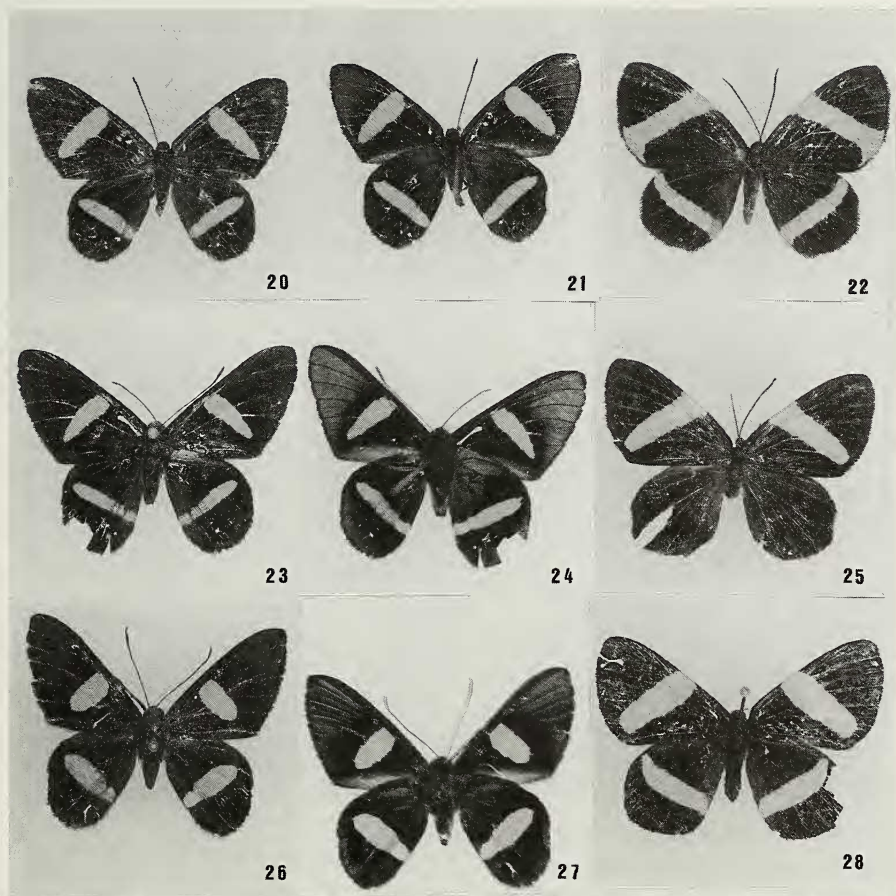
Panara trabalis Stichel, 1916. *Panara trabalis* was described as a species by Stichel from a female from Santa Catarina, Brazil, located in the Natural History Museum, London. The type represents the female of *P. soana soana*, the white scaling along the veins and no band on the hindwing being typical of southern Brazilian populations.

Panara dilata Lathy, 1932. *P. dilata* was described by Lathy from a female from Ponto Grosso, Paraná, and who assigned it to the genus *Lymnas*, Blanchard (currently *Melanis* Hubner). The type in the Natural History Museum (London) is the female of *P. soana*.

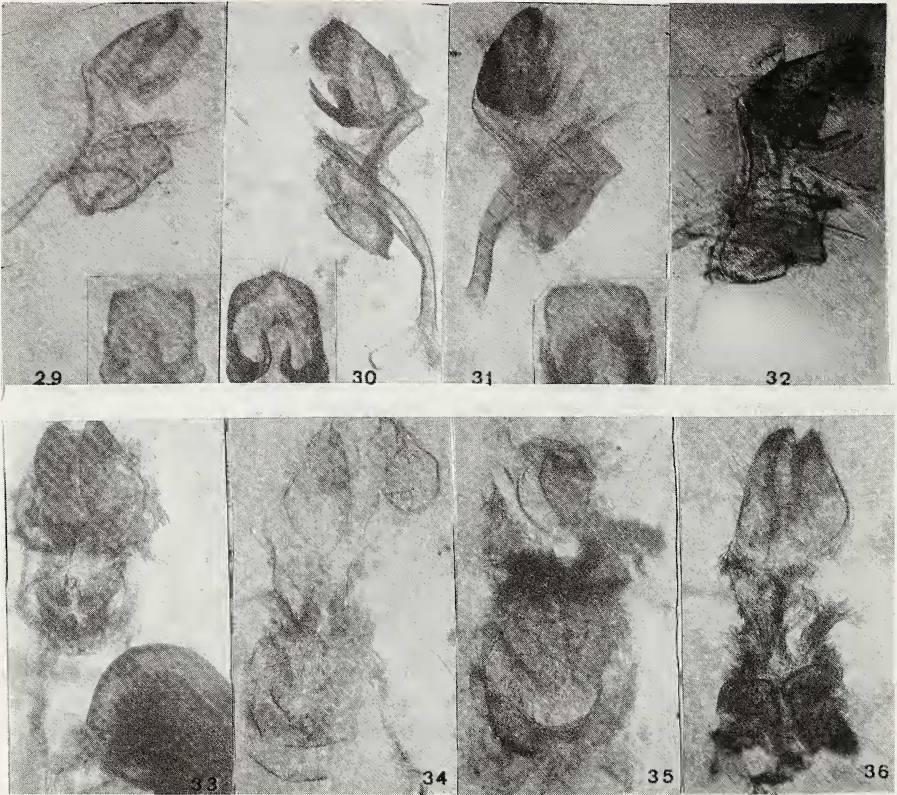
Identification. The male of the nominate subspecies is distinguished by strong light blue reflections on the ventral forewing at the apex and ventral hindwing at the base and around the margin, when viewed at an angle. The female lacks the band on the hindwing and has light scaling along the veins of both wings.

The valvae in the male genitalia (Fig. 31) extend above the transtilla, and the ostium bursae in the female genitalia (Fig. 35) has V-shaped sides.

Geographical Variation. The nominate subspecies *Panara soana soana* (Figs. 12–13) ranges from northern Rio Grande do Sul State north along the Serra do Mar to São Paulo State.

Fig. 20. *P. soana bacana*, male dorsal surfaceFig. 21. *P. soana bacana*, male ventral surfaceFig. 22. *P. soana bacana*, female dorsal surfaceFig. 23. *P. soana ruschii*, male dorsal surfaceFig. 24. *P. soana ruschii*, male ventral surfaceFig. 25. *P. soana ruschii*, female dorsal surfaceFig. 26. *P. ovifera*, male dorsal surfaceFig. 27. *P. ovifera*, male ventral surfaceFig. 28. *P. ovifera*, female dorsal surface

Brazil. Minas Gerais: Virginia, 900 m, 1♂, MN; Parque Nacional Itatiaia, 900 m, 1♂, MN; 1♂, 1♀, UFP; Itajuba, 4♂; São Paulo: "São Paulo," 1♀, MN; 1♂, UFP; 2♂, NHML; Amparo, 1♀, MN; Cantareira, 1♂, 1♀, MN, 1♀, UFP, 4♀, SM; Sa. Japi, 1♀, CJC. Paraná: Ponta Grossa, 4♂, 4♀, UFP; Rio Vermelho, 2♂, CJC; Curitiba, 1♂, CJC; 7♂, 5♀, UFP; São Luiz, Puruna, 2♂, UFP; Vossoroca, 3♂, UFP; Santa Catarina: Joinville, 2♂, CJC; Campo Alegre, 7♂, NMNH; São Bento do Sul, 2♂, 1♀, CJC; São Luis de Paraná, 2♂, 1♀, CJC; Blumenau, 3♂, SM; Massaranduba, 1♂, SM.



- Fig. 29. *P. iarbasa iarbasa*, male genitalia
 Fig. 30. *P. aureizona*, male genitalia
 Fig. 31. *P. soana*, male genitalia
 Fig. 32. *P. ovifera*, male genitalia
 Fig. 33. *P. iarbasa iarbasa*, female genitalia
 Fig. 34. *P. aureizona*, female genitalia
 Fig. 35. *P. soana*, female genitalia
 Fig. 36. *P. ovifera*, female genitalia

Ecology and Behavior. *P. soana soana* inhabits montane subtropical forest above 600 m. Males perch on the forest edges during the early afternoon, resting on dorsal leaf surfaces with wings spread. At some localities they are common.

Panara soana bacana Callaghan, new subspecies (Figs. 20–22)

Description. Male differs from the nominate subspecies in having a wider band on the dorsal hindwing and a reduction of the blue iridescence at the apex and base of hindwing. Caraça specimens have less blue than those to the southeast. Female differs in a marked reduction in the white scaling along the veins and the presence of a yellow transverse band on the hindwing



Fig. 37. Distribution of the species of *Panara*. ■ *P. phereclus* ● *P. iarbass*
▲ *P. auerizona*, □ *P. soana*, △ *P. ovifera*

from the inner margin near the anal angle narrowing to the costa, where it turns slightly basad.

Holotype Male. With label “BRAZIL, Minas Gerais, Caraça, 2500 m, 26-iv-1975, C. Callaghan,” a genitalia label #424 and a red holotype label. The holotype is deposited in the Museu Nacional, Rio de Janeiro, Brazil.

Paratypes. Passa Quatro, MG, 1♂, MN; Caraça, MG, 1500 m, 3♂, 3♀, CJC; 15♂, 8♀, NHML; Barbacena, 1200 m, MG, 4♂, 2♀, CJC; Poço de Caldas, 600 m, 9♂, 1♀, MN; Caxambu, MG, 5♂, MN; Novo Friburgo, R.J., 3♀, NHML.

Etymology. “Bacana” means “nice” in Portuguese.

Ecology and Behavior. *Panara soana bacana* inhabits subtropical humid forest patches in the Serra de Mantiqueira and Serra do Mar at 600–1800 m



Fig. 38. Distribution of *Panara* in southeast Brazil. ● *P. iarbas iarbas*, ▴ *P. iarbas thymele*, ○ *P. iarbas episatnius*, ▲ *P. aureizona*, □ *P. soana*, ■ *P. soana bacana*, ▼ *P. soana ruschii*, △ *P. ovifera*

from southeastern Minas Gerais to the Serra de Caraça. It is sympatric with *P. iarbas* in Novo Friburgo, 900 m, Rio de Janeiro.

Panara soana ruschii Callaghan, new subspecies (Figs. 23–25)

Description. Male differs from the nominate subspecies in having a longer, more pointed forewing; forewing band narrower, tapering from costa to 2 mm from distal margin above anal angle; ventral surface blue reflections at forewing apex and base of hindwing stronger and more extensive, that on apex of forewing extending along distal margin to 3 mm above anal angle. Female with very light white dusting along veins, band on forewing 4 mm wide at costa, tapering to a rounded point 1 mm from distal margin above anal angle, hindwing without transverse band. Genitalia as in nominate subspecies.

Holotype Male. With label "BRAZIL E. Santo Santa Teresa 800 m, 5-iv-1973 C. Callaghan," a genitalia label #420, and a red holotype label.

Paratypes. Santa Teresa, Espirito Santo, 900 m 2♂, 2♀, CJC. The holo-

type and a female paratype are deposited in the Museu Nacional, Rio de Janeiro.

Etymology. This taxon is named in memory of the famous Brazilian conservationist, Augusto Ruschi, who I got to know during my visits to Santa Teresa where he lived.

Ecology and Behavior. The subspecies is currently known only from the type locality where the males frequent hilltops in the early afternoon, perching on dorsal leaf surfaces with wings spread.

Panara ovifera Seitz, 1913, **new status** (Figs. 26–28)

Nomenclature. *Panara ovifera* was described by Seitz (1913) from a male from Petrópolis, Rio de Janeiro as a form of *P. thisbe*. The phenotype is representative of a unique isolated *Panara* population. The truncated bands, extensive blue sheen on the ventral surface, high mountain habitat and absence of intergrades separate it from *P. iarbas*. *Panara ovifera* is allopatric with *P. soana*. There are no clines and it is consistently distinct morphologically. The type is in the Natural History Museum (London).

Identification. The males of *P. ovifera* can be separated by the triangular orange spot tapering below the cell on the forewing, and the wide, short band on the hindwing. The ventral wing surface has the same pattern of shiny blue scaling at the apex of the forewing and the base and margin of the hindwing as *P. soana soana*, but more extensive. In the male genitalia (Fig. 32), the tips of valvae extend beyond transtilla and the female ostium bursae (Fig. 36) has V-shaped sides, and a wide sinus vaginalis.

Ecology and Behavior. *Panara ovifera* is restricted to the pygmy chusquea cloud forests above 1300 m in the Serra do Mar, Rio de Janeiro State. The males rest on the upper leaf surfaces with wings outspread beside roads and other openings in the forest between 1100–1500 h. It is rare.

Material examined. Petrópolis, Estrada Imperial, 1300 m, 3♂, 3♀, CJC; Petrópolis, RJ, 1♂, MN.

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